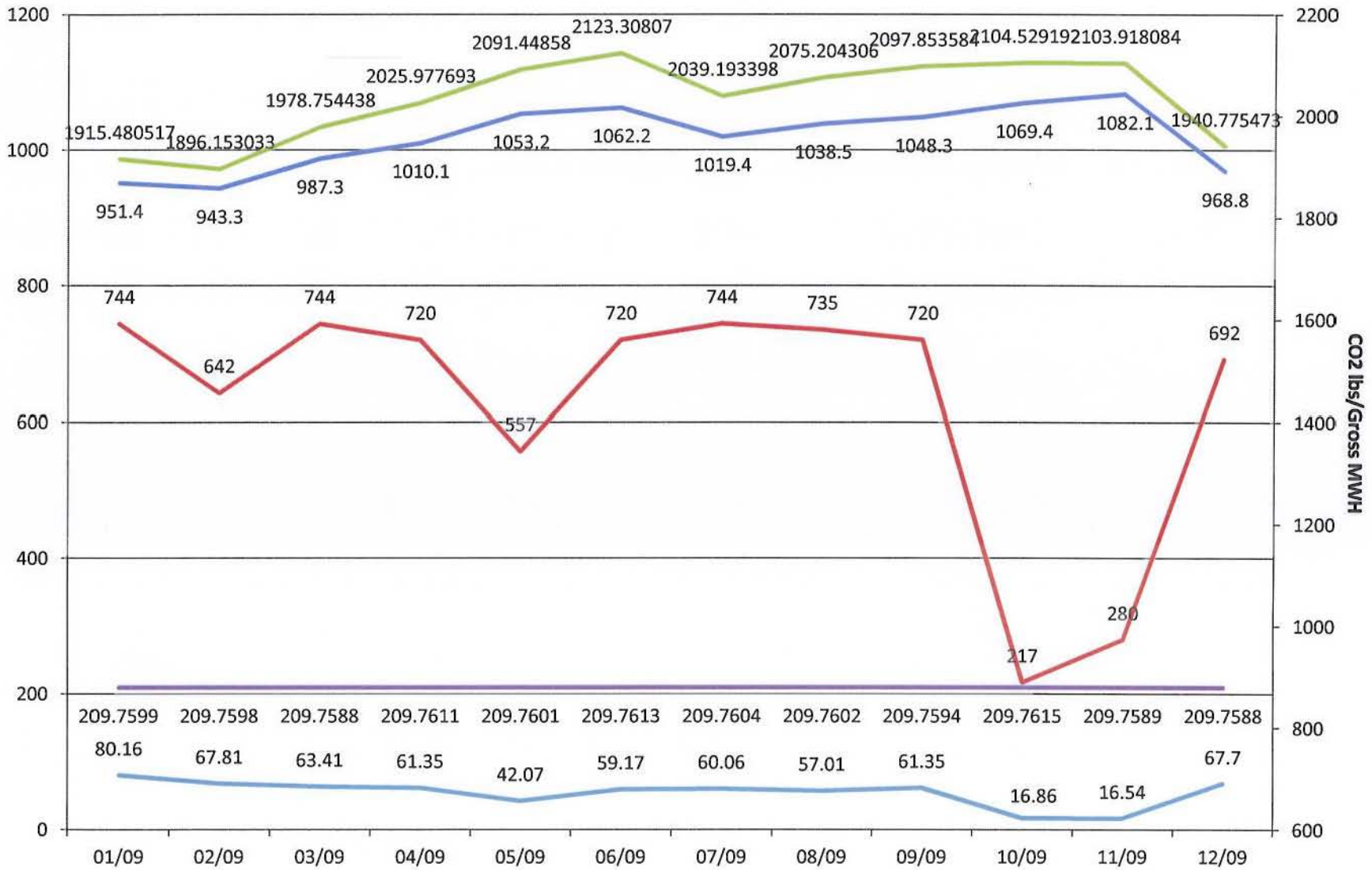
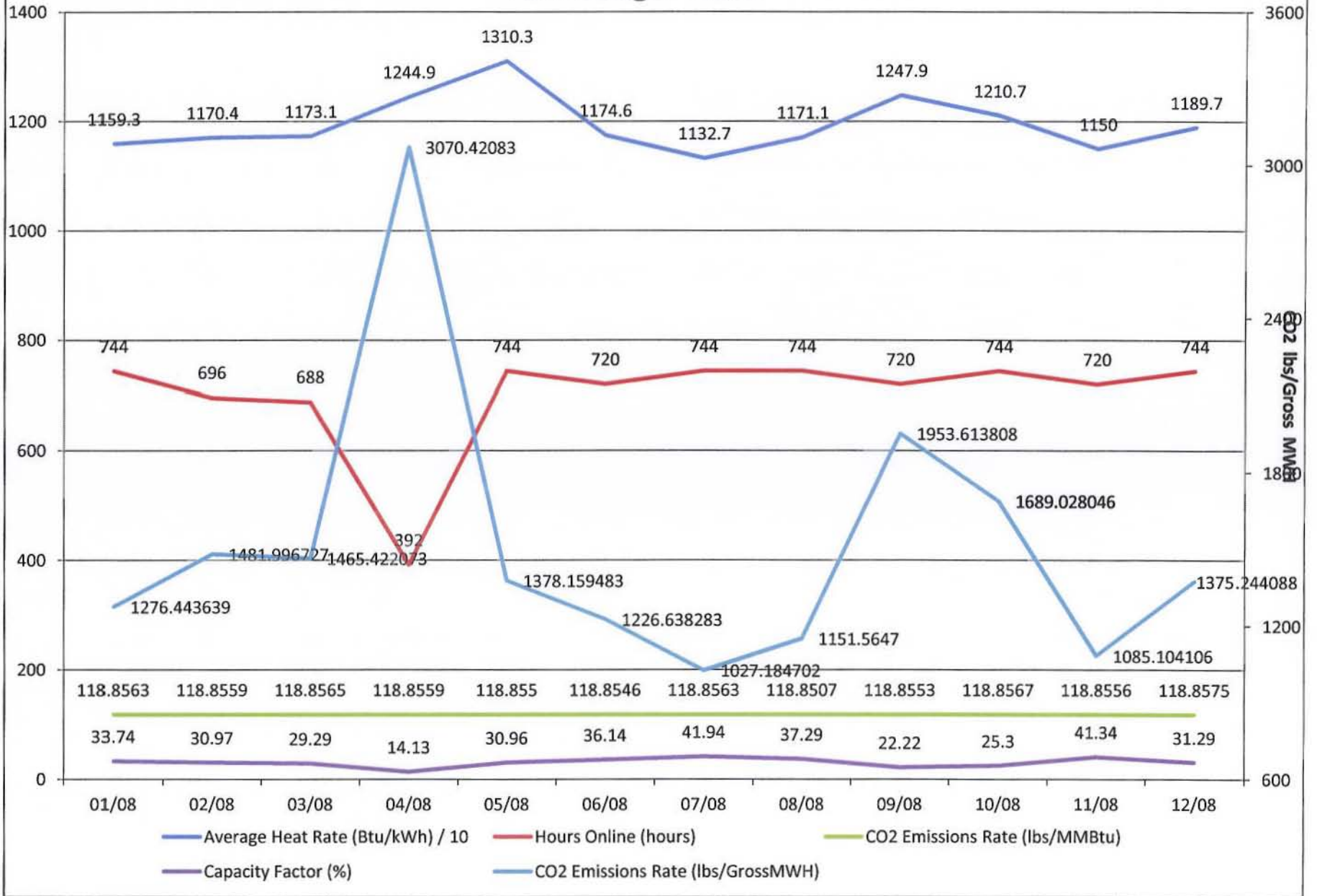


Genoa - 2009

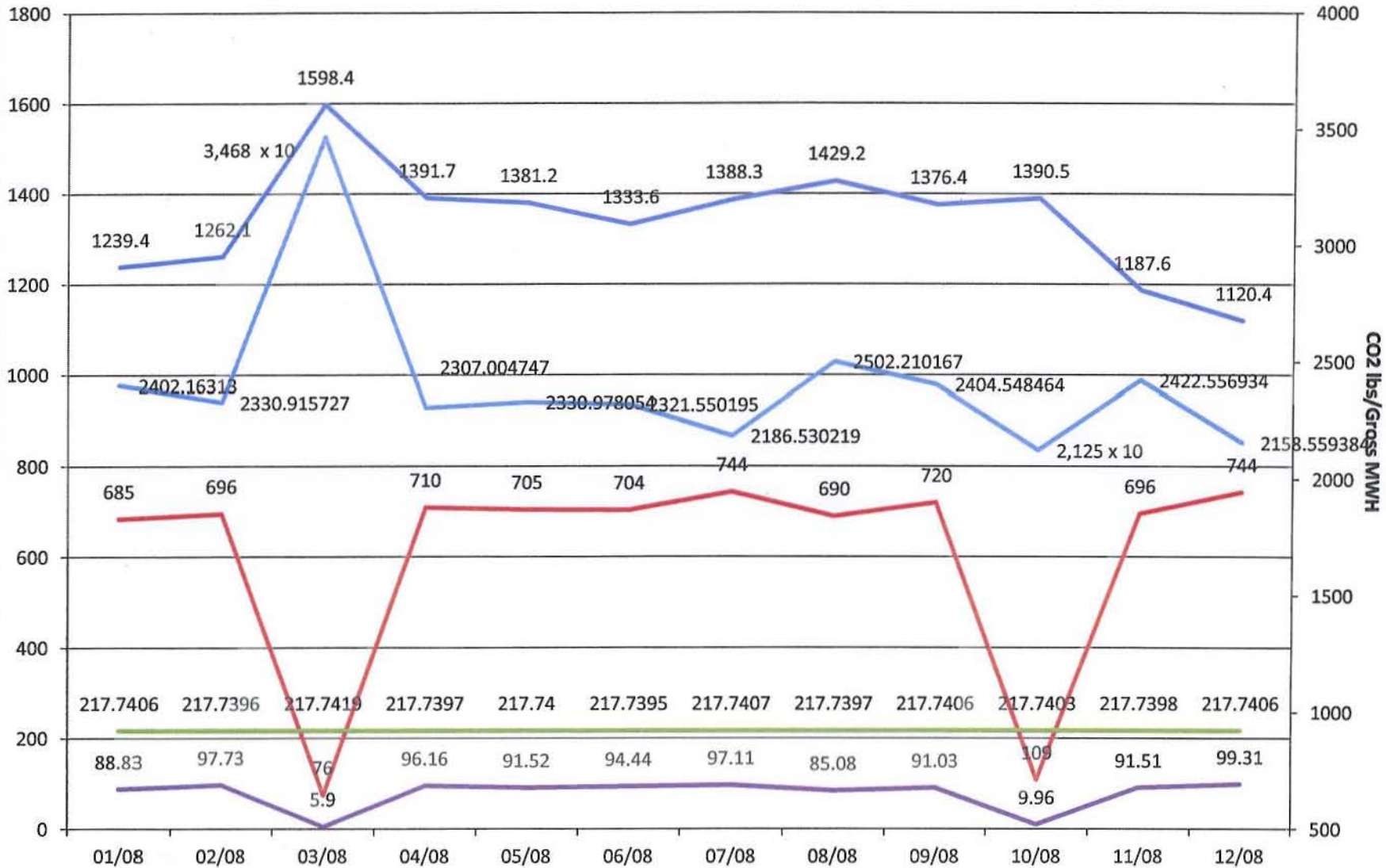


— Average Heat Rate (Btu/kWh) / 10
 — Hours Online (hours)
 — CO2 Emissions Rate (lbs/MMBtu)
— Capacity Factor (%)
 — CO2 Emissions Rate (lbs/GrossMWH)

Fort Dodge - 2008



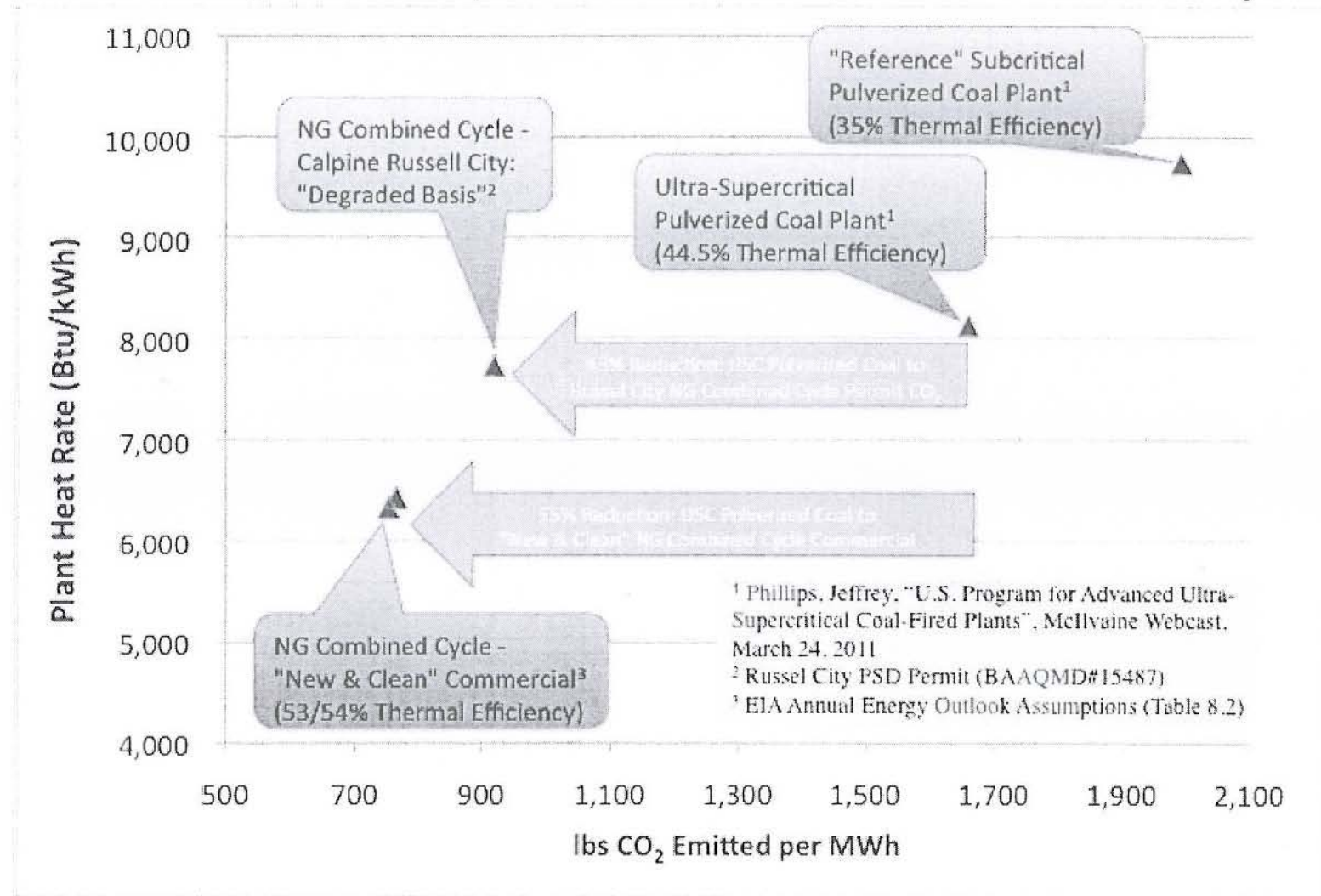
San Miguel - 2008



— Average Heat Rate (Btu/kWh) / 10
 — Hours Online (hours)
 — CO2 Emissions Rate (lbs/MMBtu)
— Capacity Factor (%)
 — CO2 Emissions Rate (lbs/GrossMWH)

PLANT HEAT RATE vs. CO₂ /MWh

Subcritical/Ultra-Supercritical Coal; NG Combined Cycle



ECONOMIC ASSESSMENT OF CARBON CAPTURE AND STORAGE TECHNOLOGIES: 2011 UPDATE

(By Worley-Parsons, Schlumberger for the Global CCS Institute)

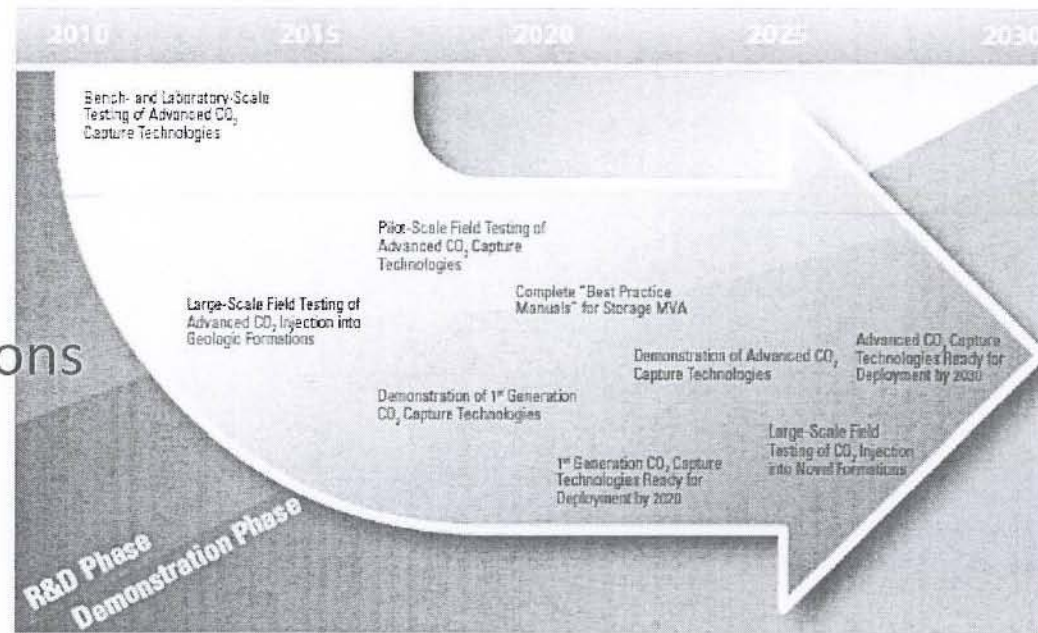
Table 1-1 Summary results of the economic assessment of CCS technologies

| | | Power generation | | | | |
|---|-------------------------------|--|-------------------------------------|----------|----------|--------------------------------|
| | | PC supercritical & ultra supercritical** | Oxyfuel combustion standard & ITM** | IGCC | NGCC | Blast furnace steel production |
| Dimensions | | US\$/MWh | US\$/MWh | US\$/MWh | US\$/MWh | US\$/tonne steel |
| Levelised cost of production | Without CCS** | 73-75 | 73-76** | 91 | 88 | 570-800 |
| | With CCS FOAK** | 120-131 | 114-123 | 125 | 123 | 82 |
| | With CCS NOAK** | 117-129 | 112-121 | | | |
| | % Increase over without CCS** | 61-76% | 53-65% | | | |
| Cost of CO ₂ avoided** (\$/tonne CO ₂) | FOAK | 52-81 | 47-69 | | | |
| | NOAK | 57-78 | 44-57 | 63 | 103 | 49 |
| Cost of CO ₂ captured (\$/tonne CO ₂) | FOAK | 53-55 | 42-47 | 39 | 90 | 54 |
| | NOAK | 52 | 41-45 | 38 | 87 | 49 |

Range in "First-of-A-Kind" and "Nth-of-A-Kind" Depends on Coal Composition, Plant Features, etc

MOST OBSERVERS CITE 2020 AS COMMERCIAL DATE FOR CCS

- DOE CCS Roadmap: Demonstrations Thru 2020



- G8 Policy Statement:
“....strongly support the launching of 20 large-scale CCS demonstration projects globally by 2010, taking into account various national circumstances, with a view to beginning broad deployment of CCS by 2020” (G8 Summit 2008)
- IEA RD&D Needs: “Warranties offered on proven technologies by 2017” (IEA CCS Technology Roadmap; page 28)